

*MPB*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/996,292A

Input Set : A:\ISIS4804.ST25.txt  
Output Set: N:\CRF3\04242002\I996292A.raw

DATE: 04/24/2002  
TIME: 11:02:59

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2853

MAY -2 2002  
MAIL ROOM

TECHNOLOGY CENTER 2800

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MAY -3 2002

3 <110> APPLICANT: Manoharan, Muthiah  
4 Maier, Martin A.  
5 Prakash, Thazha P.  
6 Rajeev, Kallanthottathil Gopalan  
8 <120> TITLE OF INVENTION: Nuclease Resistant Chimeric Oligonucleotides  
10 <130> FILE REFERENCE: ISIS-4804  
12 <140> CURRENT APPLICATION NUMBER: 09/996,292A  
13 <141> CURRENT FILING DATE: 2001-09-28  
15 <160> NUMBER OF SEQ ID NOS: 55  
17 <170> SOFTWARE: Patent version 3.1  
19 <210> SEQ ID NO: 1  
20 <211> LENGTH: 20  
21 <212> TYPE: DNA  
22 <213> ORGANISM: Artificial Sequence  
24 <220> FEATURE:  
25 <223> OTHER INFORMATION: Completely synthetic sequence  
27 <220> FEATURE:  
28 <221> NAME/KEY: misc\_feature  
29 <222> LOCATION: (1)..(20)  
30 <223> OTHER INFORMATION: All P=S  
33 <220> FEATURE:  
34 <221> NAME/KEY: misc\_feature  
35 <222> LOCATION: (1)..(1)  
36 <223> OTHER INFORMATION: N= L-Thymidine  
39 <220> FEATURE:  
40 <221> NAME/KEY: misc\_feature  
41 <222> LOCATION: (20)..(20)  
42 <223> OTHER INFORMATION: N= L-Thymidine  
45 <400> SEQUENCE: 1  
46 ngcatccccc aggccaccan  
49 <210> SEQ ID NO: 2  
50 <211> LENGTH: 17  
51 <212> TYPE: DNA  
52 <213> ORGANISM: Artificial Sequence  
54 <220> FEATURE:  
55 <223> OTHER INFORMATION: Completely synthetic sequence  
57 <220> FEATURE:  
58 <221> NAME/KEY: misc\_feature  
59 <222> LOCATION: (1)..(17)  
60 <223> OTHER INFORMATION: All P=S  
63 <220> FEATURE:  
64 <221> NAME/KEY: misc\_feature  
65 <222> LOCATION: (1)..(1)

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66 <223> OTHER INFORMATION: N= L-Thymidine
69 <220> FEATURE:
70 <221> NAME/KEY: misc_feature
71 <222> LOCATION: (2)..(3)
72 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC
75 <220> FEATURE:
76 <221> NAME/KEY: misc_feature
77 <222> LOCATION: (15)..(15)
78 <223> OTHER INFORMATION: N= 2'-O-MOE A
81 <220> FEATURE:
82 <221> NAME/KEY: misc_feature
83 <222> LOCATION: (16)..(16)
84 <223> OTHER INFORMATION: N= 2'-O-MOE 5meU
87 <220> FEATURE:
88 <221> NAME/KEY: misc_feature
89 <222> LOCATION: (17)..(17)
90 <223> OTHER INFORMATION: N= L-Thymidine
93 <400> SEQUENCE: 2
W--> 94 nnncgctgtg atgcnnn 17
97 <210> SEQ ID NO: 3
98 <211> LENGTH: 20
99 <212> TYPE: DNA
100 <213> ORGANISM: Artificial Sequence
102 <220> FEATURE:
103 <223> OTHER INFORMATION: Completely synthetic sequence
105 <220> FEATURE:
106 <221> NAME/KEY: misc_feature
107 <222> LOCATION: (1)..(20)
108 <223> OTHER INFORMATION: All P=S
111 <220> FEATURE:
112 <221> NAME/KEY: misc_feature
113 <222> LOCATION: (1)..(1)
114 <223> OTHER INFORMATION: N= L-Thymidine
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118 <221> NAME/KEY: misc_feature
119 <222> LOCATION: (2)..(3)
120 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC
123 <220> FEATURE:
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125 <222> LOCATION: (13)..(14)
126 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC
129 <220> FEATURE:
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132 <223> OTHER INFORMATION: N= 2'-O-MOE 5meU
135 <220> FEATURE:
136 <221> NAME/KEY: misc_feature
137 <222> LOCATION: (16)..(16)
138 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC

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141 <220> FEATURE:
142 <221> NAME/KEY: misc_feature
143 <222> LOCATION: (17)..(17)
144 <223> OTHER INFORMATION: N= 2'-O-MOE A
147 <220> FEATURE:
148 <221> NAME/KEY: misc_feature
149 <222> LOCATION: (18)..(19)
150 <223> OTHER INFORMATION: N= 2'-O-MOE G
153 <220> FEATURE:
154 <221> NAME/KEY: misc_feature
155 <222> LOCATION: (20)..(20)
156 <223> OTHER INFORMATION: N= L-Thymidine
159 <400> SEQUENCE: 3
W--> 160 nnngtcatcg ctannnnnnnnn 20
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164 <211> LENGTH: 20
165 <212> TYPE: DNA
166 <213> ORGANISM: Artificial Sequence
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169 <223> OTHER INFORMATION: Completely synthetic sequence
171 <220> FEATURE:
172 <221> NAME/KEY: misc_feature
173 <222> LOCATION: (1)..(20)
174 <223> OTHER INFORMATION: All P=S
177 <400> SEQUENCE: 4
178 tgcattcccc aggccaccat 20
181 <210> SEQ ID NO: 5
182 <211> LENGTH: 20
183 <212> TYPE: DNA
184 <213> ORGANISM: Artificial Sequence
186 <220> FEATURE:
187 <223> OTHER INFORMATION: Completely synthetic sequence
189 <220> FEATURE:
190 <221> NAME/KEY: misc_feature
191 <222> LOCATION: (1)..(20)
192 <223> OTHER INFORMATION: All P=S
195 <220> FEATURE:
196 <221> NAME/KEY: misc_feature
197 <222> LOCATION: (1)..(1)
198 <223> OTHER INFORMATION: N= L-Thymidine
201 <220> FEATURE:
202 <221> NAME/KEY: misc_feature
203 <222> LOCATION: (20)..(20)
204 <223> OTHER INFORMATION: N= L-Thymidine
207 <400> SEQUENCE: 5
W--> 208 ngcatccccc aggccaccan 20
211 <210> SEQ ID NO: 6
212 <211> LENGTH: 17
213 <212> TYPE: DNA

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Input Set : A:\ISIS4804.ST25.txt

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214 <213> ORGANISM: Artificial Sequence  
 216 <220> FEATURE:  
 217 <223> OTHER INFORMATION: Completely synthetic sequence  
 219 <220> FEATURE:  
 220 <221> NAME/KEY: misc\_feature  
 221 <222> LOCATION: (1)..(17)  
 222 <223> OTHER INFORMATION: All P=S  
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 226 tccccgctgtg atgcatt  
 229 <210> SEQ ID NO: 7  
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 231 <212> TYPE: DNA  
 232 <213> ORGANISM: Artificial Sequence  
 234 <220> FEATURE:  
 235 <223> OTHER INFORMATION: Completely synthetic sequence  
 237 <220> FEATURE:  
 238 <221> NAME/KEY: misc\_feature  
 239 <222> LOCATION: (1)..(17)  
 240 <223> OTHER INFORMATION: All P=S  
 243 <220> FEATURE:  
 244 <221> NAME/KEY: misc\_feature  
 245 <222> LOCATION: (1)..(1)  
 246 <223> OTHER INFORMATION: N= L-Thymidine  
 249 <220> FEATURE:  
 250 <221> NAME/KEY: misc\_feature  
 251 <222> LOCATION: (2)..(3)  
 252 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC  
 255 <220> FEATURE:  
 256 <221> NAME/KEY: misc\_feature  
 257 <222> LOCATION: (15)..(15)  
 258 <223> OTHER INFORMATION: N= 2'-O-MOE A  
 261 <220> FEATURE:  
 262 <221> NAME/KEY: misc\_feature  
 263 <222> LOCATION: (16)..(16)  
 264 <223> OTHER INFORMATION: N= 2'-O-MOE 5meU  
 267 <220> FEATURE:  
 268 <221> NAME/KEY: misc\_feature  
 269 <222> LOCATION: (17)..(17)  
 270 <223> OTHER INFORMATION: N= L-Thymidine  
 273 <400> SEQUENCE: 7  
 W--> 274 nnnccgctgtg atgcnnn  
 277 <210> SEQ ID NO: 8  
 278 <211> LENGTH: 20  
 279 <212> TYPE: DNA  
 280 <213> ORGANISM: Artificial Sequence  
 282 <220> FEATURE:  
 283 <223> OTHER INFORMATION: Completely synthetic sequence  
 285 <220> FEATURE:  
 286 <221> NAME/KEY: misc\_feature

17

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Input Set : A:\ISIS4804.ST25.txt

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287 <222> LOCATION: (1)..(20)  
 288 <223> OTHER INFORMATION: All P=S  
 291 <220> FEATURE:  
 292 <221> NAME/KEY: misc\_feature  
 293 <222> LOCATION: (1)..(1)  
 294 <223> OTHER INFORMATION: N= L-Cytidine  
 297 <220> FEATURE:  
 298 <221> NAME/KEY: misc\_feature  
 299 <222> LOCATION: (2)..(2)  
 300 <223> OTHER INFORMATION: N= 2'-O-MOE 5meU  
 303 <220> FEATURE:  
 304 <221> NAME/KEY: misc\_feature  
 305 <222> LOCATION: (3)..(3)  
 306 <223> OTHER INFORMATION: N= 2'-O-MOE A  
 309 <220> FEATURE:  
 310 <221> NAME/KEY: misc\_feature  
 311 <222> LOCATION: (4)..(4)  
 312 <223> OTHER INFORMATION: N= 2'-O-MOE G  
 315 <220> FEATURE:  
 316 <221> NAME/KEY: misc\_feature  
 317 <222> LOCATION: (5)..(5)  
 318 <223> OTHER INFORMATION: N= 2'-O-MOE A  
 321 <220> FEATURE:  
 322 <221> NAME/KEY: misc\_feature  
 323 <222> LOCATION: (16)..(16)  
 324 <223> OTHER INFORMATION: N= 2'-O-MOE 5meU  
 327 <220> FEATURE:  
 328 <221> NAME/KEY: misc\_feature  
 329 <222> LOCATION: (17)..(17)  
 330 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC  
 333 <220> FEATURE:  
 334 <221> NAME/KEY: misc\_feature  
 335 <222> LOCATION: (18)..(18)  
 336 <223> OTHER INFORMATION: N= 2'-O-MOE G  
 339 <220> FEATURE:  
 340 <221> NAME/KEY: misc\_feature  
 341 <222> LOCATION: (19)..(19)  
 342 <223> OTHER INFORMATION: N= 2'-O-MOE 5meU  
 345 <220> FEATURE:  
 346 <221> NAME/KEY: misc\_feature  
 347 <222> LOCATION: (20)..(20)  
 348 <223> OTHER INFORMATION: N= 2'-O-MOE 5meC  
 351 <400> SEQUENCE: 8

W--&gt; 352 mnnnnttcca cactcnnnnn

20

355 <210> SEQ ID NO: 9  
 356 <211> LENGTH: 20  
 357 <212> TYPE: DNA  
 358 <213> ORGANISM: Artificial Sequence  
 360 <220> FEATURE:

**RAW SEQUENCE LISTING ERROR SUMMARY**  
**PATENT APPLICATION: US/09/996,292A**

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Input Set : A:\ISIS4804.ST25.txt  
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**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 1,20  
Seq#:2; N Pos. 1,2,3,15,16,17  
Seq#:3; N Pos. 1,2,3,13,14,15,16,17,18,19,20  
Seq#:5; N Pos. 1,20  
Seq#:7; N Pos. 1,2,3,15,16,17  
Seq#:8; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:9; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:10; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:11; N Pos. 10,11,12,13,14,16,17,18,19,20  
Seq#:12; N Pos. 1,10,11,12,13,14,16,17,18,19,20  
Seq#:13; N Pos. 9,10,11,12,20  
Seq#:14; N Pos. 1,9,10,11,12  
Seq#:15; N Pos. 1,9,10,11,12,20  
Seq#:16; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:17; N Pos. 10,11,12,13,14,16,17,18,19,20  
Seq#:18; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:19; N Pos. 10,11,12,13,14,15,16,17,18,19,20  
Seq#:20; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:21; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:22; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:23; N Pos. 1,2,3,4,5,6,17,18,19,20,21  
Seq#:24; N Pos. 10,11,12,13,14,15,16,17,18,19,21  
Seq#:25; N Pos. 1,11,12,13,14,15,16,17,18,19,20,22  
Seq#:26; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:27; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:28; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:29; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:30; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:31; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:32; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:33; N Pos. 1,2,3,4,5,16,17,18,19,20  
Seq#:34; N Pos. 5  
Seq#:35; N Pos. 5  
Seq#:36; N Pos. 5  
Seq#:37; N Pos. 9  
Seq#:38; N Pos. 2,6  
Seq#:39; N Pos. 6,8  
Seq#:41; N Pos. 2,6  
Seq#:43; N Pos. 4  
Seq#:44; N Pos. 8  
Seq#:45; N Pos. 11  
Seq#:46; N Pos. 12  
Seq#:47; N Pos. 13  
Seq#:48; N Pos. 14

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Seq#:49; N Pos. 15  
Seq#:51; N Pos. 1  
Seq#:52; N Pos. 20  
Seq#:53; N Pos. 1,20  
Seq#:54; N Pos. 19  
Seq#:55; N Pos. 19

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Input Set : A:\ISIS4804.ST25.txt

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L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0

L:94 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0

L:160 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0

L:208 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0

L:274 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0

L:352 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0

L:430 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0

L:508 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0

L:574 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0

L:646 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0

L:694 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0

L:742 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0

L:796 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0

L:874 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:0

L:940 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:0

L:1018 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0

L:1084 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0

L:1162 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0

L:1240 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0

L:1318 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0

L:1402 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0

L:1468 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:0

L:1540 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25 after pos.:0

L:1619 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26 after pos.:0

L:1699 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0

L:1778 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0

L:1858 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:0

L:1936 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0

L:2014 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0

L:2092 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:0

L:2172 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0

L:2190 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:0

L:2208 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0

L:2226 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0

L:2244 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0

L:2268 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0

L:2292 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0

L:2328 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0

L:2370 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43 after pos.:0

L:2394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:0

L:2418 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45 after pos.:0

L:2442 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:0

L:2466 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47 after pos.:0

L:2490 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48 after pos.:0

L:2514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49 after pos.:0

L:2544 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51 after pos.:0

L:2562 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52 after pos.:0



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L:2586 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53 after pos.:0  
L:2604 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:0  
L:2622 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:0